

## Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of the claims in the application.

### Listing of Claims

1. (currently amended) A time division multiplexing switch comprising:

a plurality of ingress ports, each of the ingress ports in the plurality for synchronously receiving data grains at fixed time intervals, the data grains ordered as grain groups;

~~at least one a plurality of memory egress self selection (MESS) egress ports, for receiving the data grains from the plurality of ingress ports, for storing a single grain for each channel, and for transmitting stored the data grains in a predetermined order; and~~

a grain aggregator, operatively connected to the plurality of ingress ports, for aggregating the data grains received by each of the ingress ports during a single timeslot into an aggregate of data grains in an N grain wide channel, where N is the number of ingress ports, and for providing the aggregate of data grains to the plurality of MESS egress ports simultaneously;

~~the at least one each MESS egress port from the plurality having a data grain selector for selecting data grains from the received aggregate of data grains only data grains that the MESS egress port will transmit, in accordance with at least one predetermined criterion prior to storing the selected grains for transmission by the MESS egress port;~~

said data grain selector being able to select up to N data grains during a single timeslot in accordance with at least one ~~the~~ predetermined criterion being based on the ingress port associated with the received data grains and a position of a grain in its respective grain group.

2. (cancelled)

3. (cancelled) ~~The time division multiplexing switch of claim 1, further including a grain aggregator, operatively connected to the plurality of ingress ports, for aggregating the data grains received by each of the ingress ports and for providing the aggregate to the at least one MESS egress port.~~



4. (currently amended) The time division multiplexing switch of claim 1, wherein the data grain selector includes an ingress processor for receiving ~~an~~ the aggregate of the data grains ~~received by the plurality of ingress ports~~, and for selecting data grains from the aggregate for storage in accordance with the at least one predetermined criterion.

5. (previously presented) The time division multiplexing switch of claim 4, wherein the ingress processor includes an interest memory for storing a grain mask corresponding to the predetermined grain selection criterion and a finite state machine for selecting grains from the aggregate for storage in accordance with the grain mask by compacting incoming data grains into data memory at each egress port to remove gaps between the selected grains.

6. (currently amended) A time division multiplexing switch comprising:

a plurality of ingress ports, each of the ingress ports in the plurality for synchronously receiving data grains at fixed time intervals, the data grains ordered as grain groups;

~~at least one a plurality of~~ memory egress self selection (MESS) egress ports, for receiving the data grains from the plurality of ingress ports and for transmitting stored data grains in a predetermined order, and  
a grain aggregator, operatively connected to the plurality of ingress ports, for aggregating the data grains received by each of the ingress ports during a single timeslot into an aggregate of data grains in an N grain wide data channel, where N is the number of ingress ports, and for providing the aggregate of data grains to the plurality of MESS egress ports simultaneously;

~~the at least one~~ each MESS egress port ~~from the plurality~~ having a data grain selector for selecting ~~from the aggregate of~~ data grains ~~from the received data grains~~ only data grains that the MESS egress port will transmit;

said data grain selector being able to select up to N data grains during a single timeslot in accordance with at least one predetermined criterion prior to storing the selected grains for transmission by the MESS egress port,

wherein the data grain selector includes an ingress processor for receiving ~~an~~ the aggregate of the data grains received by the plurality of ingress ports during a single timeslot, and for selecting data grains from the aggregate for storage in accordance with the at least one predetermined criterion,



wherein the ingress processor includes an interest memory for storing a grain mask corresponding to the predetermined grain selection criterion and a finite state machine for selecting grains from the aggregate for storage in accordance with the grain mask, and

wherein the grain mask is based on the associated ingress port and the position of the grain in the respective grain group.

7. (currently amended) The time division multiplexing switch of claim 4, wherein each of the MESS egress ports includes:

a memory for storing the selected data grains, the memory including a plurality of random access memories (RAMs) for storing a received grain; and

an egress processor for reading and transmitting the stored data grains from the memory in a predetermined order.

8. (original) The time division multiplexing switch of claim 7, wherein the ingress processor includes a memory compactor for addressing the selected data grains for storage in the memory without memory fragmentation.

9. (original) The time division multiplexing switch of claim 8 wherein the memory compactor includes a finite state machine for selecting the first available location in memory and a plurality of multiplexers for multiplexing the selected data grains into the memory.

10. (original) The time division multiplexing switch of claim 7, wherein the memory is sized to store exactly one grain group.

11. (original) The time division multiplexing switch of claim 7, wherein the memory stores only the selected data grains.

12. (original) The time division multiplexing switch of claim 7, wherein the egress processor includes an egress processing memory for storing the predetermined order for reading and transmitting the stored data grains.



13. (currently amended) A time division multiplexing switch comprising:

a plurality of ingress ports, each of the ingress ports in the plurality for synchronously receiving data grains at fixed time intervals, the data grains ordered as grain groups;

~~at least one~~ a plurality of memory egress self selection (MESS) egress ports, for receiving the data grains from the plurality of ingress ports and for transmitting stored data grains in a predetermined order; ; and

a grain aggregator, operatively connected to the plurality of ingress ports, for aggregating the data grains received by each of the ingress ports during a single timeslot into an aggregate of data grains in an N grain wide channel, where N is the number of ingress ports, and for providing the aggregate of data grains to the plurality of MESS egress ports simultaneously;

~~the at least one each~~ MESS egress port from the plurality having a data grain selector for selecting from the aggregate of data grains ~~from the received data grains~~ only data grains that the MESS egress port will transmit, said selection is performed in accordance with at least one predetermined criterion prior to storing the selected grains for transmission by the MESS egress port, said data grain selector being able to select up to N data grains during a single timeslot;

wherein the data grain selector includes an ingress processor for receiving an aggregate of the data grains received by the plurality of ingress ports, and for selecting data grains from the aggregate for storage in accordance with the at least one predetermined criterion,

wherein each of the MESS egress ports includes:

a memory for storing the selected data grains, and

an egress processor for reading and transmitting the stored data grains from the memory in a predetermined order, the egress processor including an egress processing memory for storing the predetermined order for reading and transmitting the stored data grains; and

the switch further including a connection memory for storing connection information, for providing an interest RAM with the predetermined criterion and the egress processing memory with the predetermined order in accordance with the stored connection information.



14. (original) The time division multiplexing switch of claim 7, wherein the egress processor includes an N:1 multiplexer attached to the memory for reading and sequentially transmitting the stored data grains in the predetermined order, where N is the number of ingress ports.

15. (original) The time division multiplexing switch of claim 7, wherein the egress processor includes an N:M multiplexer attached to the memory for reading and sequentially transmitting a plurality of data grains in the predetermined order, where N is the number of ingress ports and  $M \geq 1$ .

16. (currently amended) A method of time division multiplex switching received data grains to ~~at least one~~ a plurality of egress ports, the method comprising:

receiving and aggregating a plurality of data grains received in a single timeslot at a number N of ingress ports, each of the plurality of data grains being associated with a grain group;

transferring the aggregate of the received data grains to ~~the at least one~~ the plurality of egress ports simultaneously;

at a selected egress port in the plurality of egress ports, selecting from the aggregate only data grains that the selected egress port will transmit, the selected data grains numbering up to N the data grains in a single timeslot to be transmitted by the at least one egress port, including applying a mask to the aggregate to select grains in accordance with the ingress port associated with the position of the grain in the aggregate and the position of the grain in its respective grain group;

storing the selected data grains at the ~~least one~~ selected egress port; and

transmitting the stored data grains from the ~~at least one~~ selected egress port in a predetermined order.

17. (canceled)

18. (cancelled).

19. (original) The method of claim 16 wherein the step of storing the selected grains includes compactly storing the selected grains in a memory.



20. (original) The method of claim 19 wherein the step of transmitting includes reading stored grains from the memory in a predetermined order.

21. (new) The method of claim 16 wherein the steps of selecting, storing and transmitting are performed at each of the plurality of egress ports.